

METAL MODIFIED Pd/Ni CATALYSTS

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a division of United States Serial No. 10/137,053 filed on May 1, 2002. *now U.S. Patent No. 6,762,324*

5 BACKGROUND OF THE INVENTION

Processes for the hydrogenation of organic compounds including those having functional groups have been widely practiced. Amination of alcohols, hydrogenation of nitriles to amines, hydrogenation of nitro groups as in the conversion of nitroaromatics to aromatic amines are commonplace industrial reactions. Catalysts used for the industrial
10 hydrogenation of these compounds typically are based upon Group VIII metals. However, cobalt and nickel often are the primary metals employed. Promoter metals have been added to these catalytic metals to alter reactivity, byproduct formation and the like.

Representative patents and articles illustrating hydrogenation processes and the
15 catalytic metals used therefor are as follows:

U.S. 3,127,356 discloses an improved process for preparing catalysts for the hydrogenation of organic compounds such as organic nitro compounds. Platinum, palladium or nickel is deposited on an inert support, and then, an oleophilic carbon is added to the system. Subsequently the metal is reduced to an activated state. Activating
20 components, e.g., oxides of iron, nickel magnesium, manganese, chromium, vanadium, and tungsten may be added at various stages.

U.S. 4,792,626 discloses a process for the hydrogenation of dinitrotoluene to toluediamine in the presence of a modified Raney nickel catalyst. The Raney catalyst is the product of an alkali treatment of an alloy of from 50-95 wt% aluminum and 4-45